APPENDIX A

Sampling Event Report

BIP Sampling Event - September 13, 2011
Drafted September 14, 2011
Revised on January 19, 2012
By Mike Beedle

Site Information

Background
A multimedia inspection of Blue Island Phenols (BIP) that started on September 12, 2011 identified several areas of potential releases. It was determined that samples of opportunity would be taken on September 13. At the end of the day, EPA inspectors asked site representatives not to alter site conditions from September 12 to September 13. Rebecca Collins, BIP's Environmental Manager, said BIP personnel would not change site conditions.

Sampling Areas
During the tour the following areas were identified for opportunistic sampling:

1. Grassy area north of the product storage tanks. In this area, BIP was pumping out water, presumably from precipitation, from the acetone storage tank secondary containment and low lying area east of this tank. The water was pumped from two sumps, through steel piping, and discharged from a flexible hose. The water in this area had reddish-pink colored scum on it. Further to the east, the water had an oily sheen and some whitish scum on it. The vegetation in contact with the water was dead. This area was to be sampled to determine if there was a release or disposal of hazardous waste or hazardous waste constituents.
2. Moats around the phenol tanks. The phenol tanks have a small shallow concrete moat at their base. The moat appears to catch tank leaks. I observed phenol product and water in the moats on September 12, 2011. There was a dead bird in moat of tank T502 and a dead frog in the moat of tank T503. This area was to be sampled to determine, what the material was and if the material in the moat is being released into the secondary containment or to the grassy area.
3. Secondary containment of the phenol tanks. The secondary containment of the storage tanks is limestone and a reported clay lining. During the site tour, Mr. George Weeden (BIP) indicated the liquid in the secondary containment could be from ground water or rain water. He said ground water does percolate up. We did see bubbling of the water in this secondary containment. The water was a reddish-brown? color. It appeared that the tank moats could easily and have overfilled into the secondary containment. Since the secondary containment was limestone and was bubbling, it was sampled to determine if phenol, hazardous waste or hazardous constituents were present and being released to the environment.
4. API separator tanks and container "chuck wagon". BIP has an API oil/water separator. The separator is used to remove oil from wastewater before the water is discharge to the sewer.. The oil is removed from the surface of the wastewater with a rope skimmer and is transferred into a sump. From the sump it is pumped to an above ground tank. Oil is removed from the tank and also from the surface of the API separator into large container with an approximate capacity of 1000

gallons. The container is on wheels and can be hitched to a truck to be transported to the tank storage area on site. The oil is placed into the K022 hazardous waste tanks. This container was to be sampled to determine if the oil removed from the API separator was hazardous waste and which hazardous waste constituents were present.

Sampling Event

The sampling event started the morning of September 13. All samples were split. We gave an equal volume of the sample to BIP. The sampling started at approximately 9:30 AM and with the event being completed at 12:45 PM.

The samples were split by using a method of splitting the volume of scooped material or by alternate sequential filling. By both methods, the intent was to have sample splits be equal in volume and nature. A total of seven samples were taken. The samples were given the names BIP1-7 and BIP1A-7A (splits). Below, the samples are referred to as sample 1-7. This refers to both sample groups BIP1-7 and BIP1A-7A. The sampler did not look at the sample numbers (e.g. BIP1 or BIP1A) when filling the sample jars. New, clean equipment was used for each sample. The equipment was then disposed of after use.

The volume of scooped material was split for the grassy area and phenol tank secondary containment samples. Occasionally a whole scoop volume of the material was placed in a jar and the whole volume of the subsequent scoop was placed in the second jar. It was done in manner to equalize splits.

Sequential filling of sample jars occurred at the water discharge area, phenol tank moat, and chuck wagon. Sequential filling was where the whole volume of a scooped material, bailer column, or hose discharge was placed in the jar and the next whole volume was placed into the split jar sequentially until both jars were filled. The split method used depended on the sample location, volume, and sampling device used. In all cases, equal samples were collected.

The first area sampled was the grassy area by the flexible hose discharge point on the north side of the site. Three samples were taken from the area. The water in this area was approximately three inches deep. A 1-liter sample jar was used to scoop water into two other 1-liter sample jars for samples 1 and 2. The jars were filled simultaneously splitting the volume of each scoop into samples 1 and 2. Sample 1 was of the water from the area adjacent to the hose in the north central part of the plant. Sample 2 was of the north east edge of the water pool. The water in this area had a whitish colored scum on it. For both samples 1 and 2, the sample was scooped from several sub-locations in this area. For sample 3, BIP turned on the sump pump of the acetone tank secondary containment so we could sample the flowing water discharge. The discharge was alternately split sequentially between the sample jars until both were filled. The sump pump in the adjacent area was an automatic system with manual override. It was not automatically discharging at the time of the sampling.

The second area sampled was in the vicinity of the phenol tanks. Samples 4 and 5 were of pooled liquid in the secondary containment. Sample 4 was taken from several sub-locations of pooled liquid east of tank 503. Sample 5 was taken from several sub-locations of pooled liquid east of tank 502. Both areas were sampled by splitting the volume of each scoop between jars. The maximum depth of the liquid was approximately 3 inches.

Sample 6 was of the moat around tank 502. There was a dead bird in this moat. Both moats had more liquid in them on September 12 compared to September 13. The moat of tank 503 could not be sampled on September 13. We would have been able to sample it on September 12. The depth of material in the moat around tank 502 was approximately 1 inch on September 13. Alternate sequential filling of the sample jars was done at this location because of the low volume of material present.

Sample 7 was of the chuck wagon. The chuck wagon is a large tank on wheels. It is considered a container by RCRA regulations because it is mobile. The chuck wagon is used to transfer hazardous waste recovered from the API separator to the K022 tanks. Ms. Collins said the material is hazardous waste because of benzene levels. This container was sampled with a tank sampler (a 2-yard long bailer). The sample jars were filled in alternating sequence. The container was open with access on a catwalk attached to the container. This container was not labeled or marked hazardous waste.

Transfer of Samples

The samples were tagged and bagged by 12:45 PM. Ms. Brenda Whitney (EPA Inspector) transferred the samples to Mike Beedle using a chain of custody form. Split samples were provided to Ms. Collins with a chain of custody receipt. Ice was purchased at 1:18 PM and placed in the cooler. The samples were transported to the Region 5 Central Regional Lab (CRL) at 3:15 PM. Mr. Robert Synder (EPA CRL) took custody of the samples. The sample chain of custody was not marked with analysis at that time.

Mr. Synder measured the temperature of the cooler to be above 4 degrees Celsius. I explained that I took the samples; we bagged them, and then put them on ice. We discussed with the short time of transfer between collection and delivery with Ms. Amanda Wroble (EPA CRL Chemist). It would not be expected for the cooler to be at 4 degrees Celsius with that short of a transfer time.

Analysis

Since the samples were samples of opportunity, I discussed the sample collection scenario and possible analytic methods with Ms. Amanda Wroble. We discussed analyzing for total and toxicity characteristic leaching procedure (TCLP) volatile organic constituents (VOC), semi-volatile organic constituents (SVOC), metals, and flash point (sample 7 only). Samples were not preserved with any chemicals (put on ice only). Benzene is a hazardous waste constituent of concern (COC) for all samples.

Ms. Wroble said the holding time for unpreserved VOCs was 7 days. We agreed the samples would be first be analyzed for total VOCs. If the total VOCs were above regulatory levels, CRL would then run TCLP VOCs.

We discussed phenol being a COC. Ms. Wroble said the SVOCs method does measure phenol. She mentioned that typically, CRL does not find TCLP levels of SVOCs. I reviewed the TCLP regulated SVOCs hazardous waste list. It did not appear to have any of the COCs at BIP. Ms. Wroble mentioned the SVOC SOP method typically calls for the extraction of 1-liter of sample. We only collected 1-liter samples in total for each sample location. She said the SOP method allowed for less than 1-liter volume extraction for SVOC. We discussed analyzing for total metals and then if any regulated hazardous waste metal was above TCLP concentrations, a TCLP analysis would be performed.

We discussed sample 7 being analyzed as a hazardous waste sample. We discussed flash point being performed on it in addition to the other analyses. After the discussion, I marked the chain of custody and copy with the methods that were going to run on the samples. Ms. Wroble made a copy of the CRL's chain of custody for me.

Conveying Lab Analysis Methods Information to BIP

Since the samples were samples of opportunity, we were not certain what analytical methods would be used when we left the field. We told Ms. Collins that we would convey the methods after we consulted with the lab. I faxed the CRL's photocopy of the chain of custody at approximately 5:15 PM to Ms. Collins so she would know what analyses EPA would be performing.

Lab Analysis Changes

Ms. Wroble contacted me on September 15, 2011 regarding hold times, total and TCLP analysis. The lab recommended doing TCLP samples to meet the TCLP holding time requirements. Through discussions with the lab it was decided as long as total constituents could be reported out from TCLP analysis, that it would be acceptable to run TCLP.

Results

The analytical results were conveyed to me in batches, with final batch being received on January 13, 2012. Ms. Whitney sent all sample results to Ms. Collins on January 18, 2012 through email.

The detected organic constituents and flash point results are on the following table.

Blue Island Phenols Sampling Results

Sample	Chemical	Concentration	Units		
1	2-Acetylaminofluorene	9	ug/l		water north side of plant
1	Fluoranthene	5	ug/l		
2	Phenanthrene	62.8	ug/l		water north side of plant
2	Fluoranthene	142	ug/l		
2	Pyrene	101	ug/l		
2	Benzo (a) anthracene	37.1	ug/l		
2	Chrysene	64.5	ug/l		
2	Indeno(1,2,3-cd)pyrene	38.5	ug/l		
2	Dibenz(a,h)anthracene	12.8	ug/l		
2	Benzo(a)pyrene	36.9	ug/l		
2	Benzo(b)fluoranthene	86.2	ug/l		
2	Benzo(k)fluoranthene	34.5	ug/l		
2	Bis(2-ethylhexyl)phthalate	87.4	ug/l		
2	Benzo(g,h,i)perylene	47	ug/l		
3	Diethylphthalate	10.7	ug/l		hose at north side of plant
3	Bis(2-ethylhexyl)phthalate	437	ug/l		
4	Phenol	17.6	mg/l		phenol tank containment
4	Acetone	1.08	mg/l		
4	Acetophenone	*160*	*ug/l*		
5	Phenol	27.6	mg/l		phenol tank containment
5	Acetone	1.57	mg/l		
5	Acetophenone	*186*	*ug/l*		
6	Phenol	198000	mg/kg	19.80%	concrete moat phenol tank
6	Acetophenone	47600	mg/kg	4.76%	
7	Acetophenone	9570	mg/l		chuck wagon
7	Flash point organic phase	131	F		
7	Benzene - water/oil average	179	mg/l		